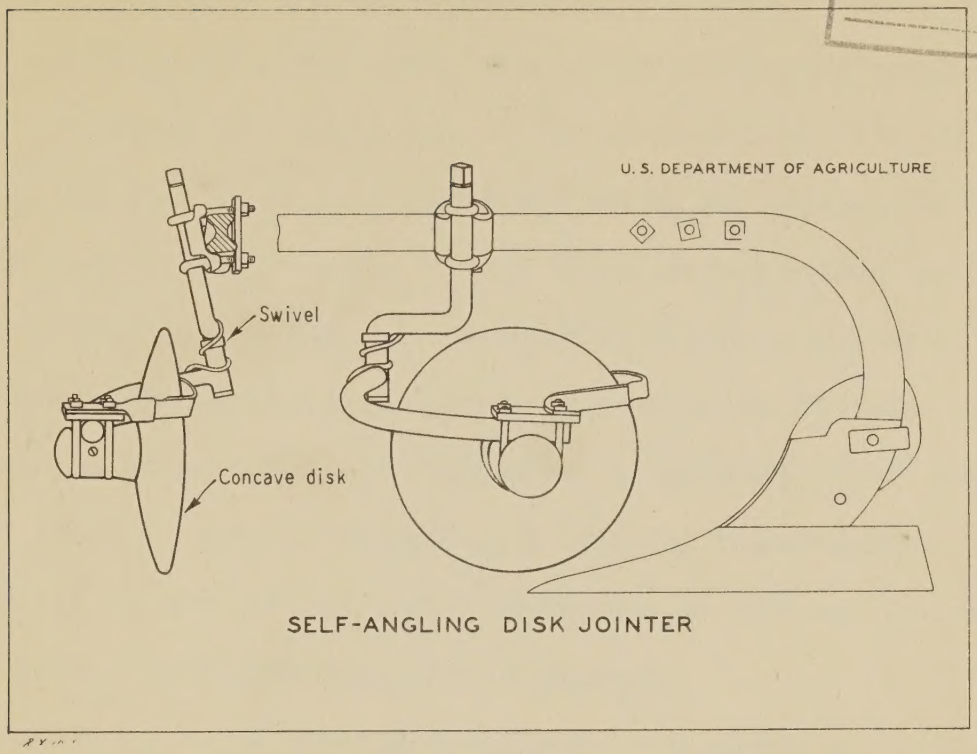
UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering
Division of Mechanical Equipment

SELF-ANGLING DISK JOINTER



Complete coverage of all trash in plowing land is a method employed by farmers for control of such insect pests as stalk borers, European corn-borers, joint worms, root aphids and horn worms. Complete coverage also controls weeds, and to a great extent such plant diseases as corn ear rot, corn smut, and wheat and barley rots. In complete coverage, trash capable of harboring pests is covered with a sufficient depth of soil so that none of it will be brought to the surface in subsequent tillage operations.

In plowing, a strip of soil is sheared loose from the land, by the share, is twisted, rolled over, and deposited in an inverted position by the moldboard. If no device is used on the plow for severing and turning under the edge of the furrow slice in front of the moldboard, bulky trash will not be completely covered; particles will protrude between adjacent inverted furrow slices.

Various types of plow attachments for severing the edge of the furrow slice and for turning under vegetation at its edge have been manufactured. The most common types, a combination of two attachments, a colter and a jointer have been used. They sometimes are difficult to adjust and in certain soil types they frequently interfere with the operation of the plow by causing side draft and by restricting the clearance of the plow and its capacity to pass trash through without clogging.

The self-angling disk jointer, designed by Archie H. Glaves of the U. S. Bureau of Agricultural Engineering, effects better coverage of trash than other attachments. It also causes a reduction in the draft of plows of 10 to 15 percent compared with draft of plows equipped with regular rolling colters and jointers. Tests made in Ohio and Illinois showed an average draft reduction of 13.6 percent.

The self-angling disk jointer is comparatively simple in design. It has a concave disk which cuts and turns under the edge of the furrow slice nearest the unplowed land just ahead of the moldboard of a plow. The jointer is mounted on an offset shank and swivel arm in such manner as to operate in dynamic stability without lateral rigidity, which means that it is free to move about the vertical standard to which it is attached but always assumes a position practically parallel to the plow travel. When the disk strikes a root, stone, or other solid object, the attachment will not be damaged, because the shank and arm permit the disk to swing to the side and upward to clear the obstruction, after which it returns to its normal position. In the figure above is shown the construction of the jointer and method of attaching it to the plow beam.

A patent assigned to the Secretary of Agriculture has been obtained on this invention.

August, 1935